



Figure 1B

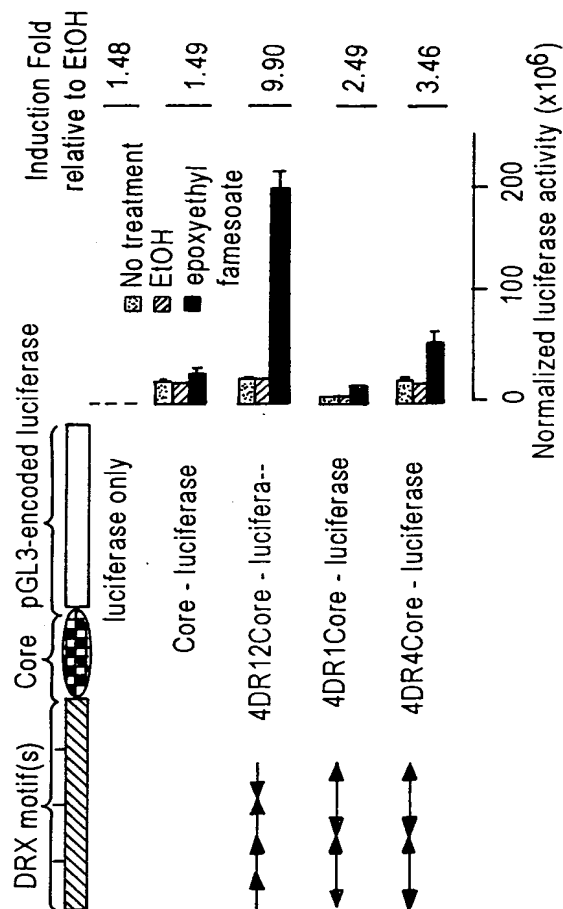


Figure 1A

sequence  
of single  
DRX:

Seq ID No: 13 DR1: CAAGGTCAAAGGTCAG

Seq ID No: 14 CAAGGTCAAAGAAAGGTCAG

Seq ID No: 15 DR12: CAAGGTCAAGAGGCCAAAGAAAGGTCAG

Seq ID No: 23 mut DR12: CAAGGatAGAGGCCAAAGAAAGGatG

Figure 2A

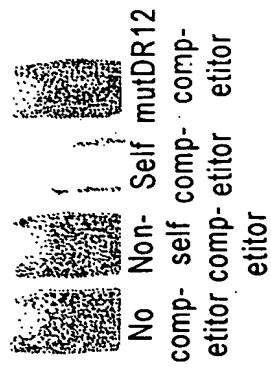


Figure 2B

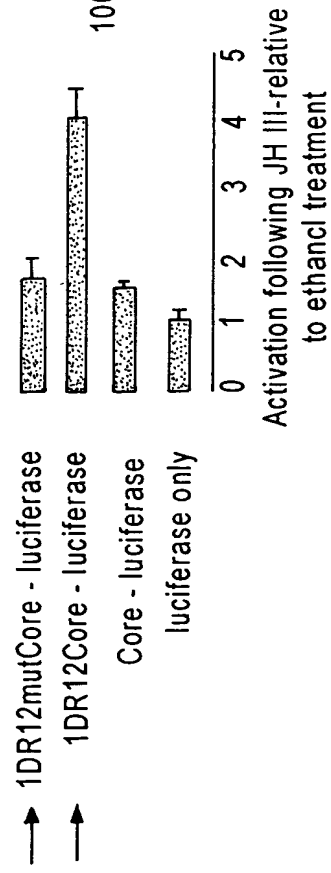


Figure 2C

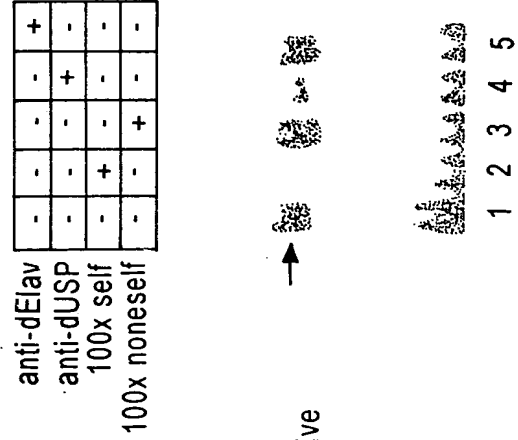


Figure 3A

Panel A

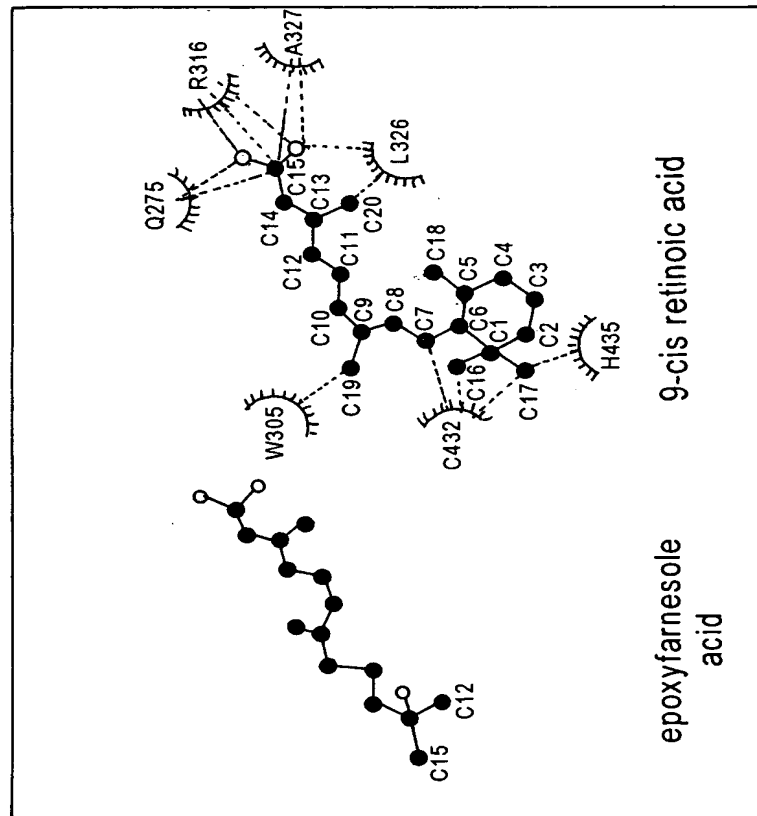


Figure 3B

Panel B - human RXR $\alpha$

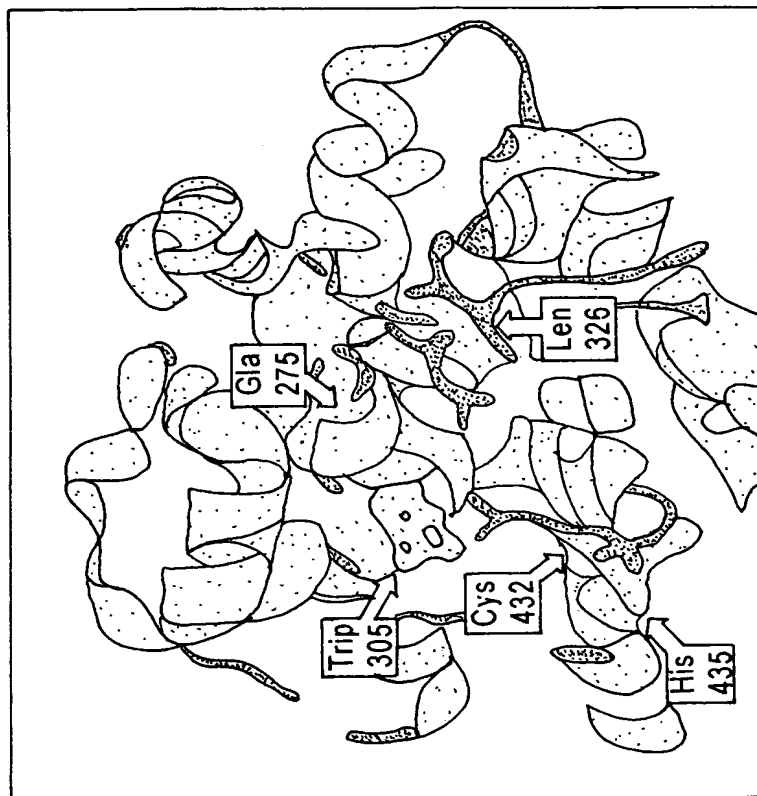


Figure 3C

Panel C - *Drosophila* USP

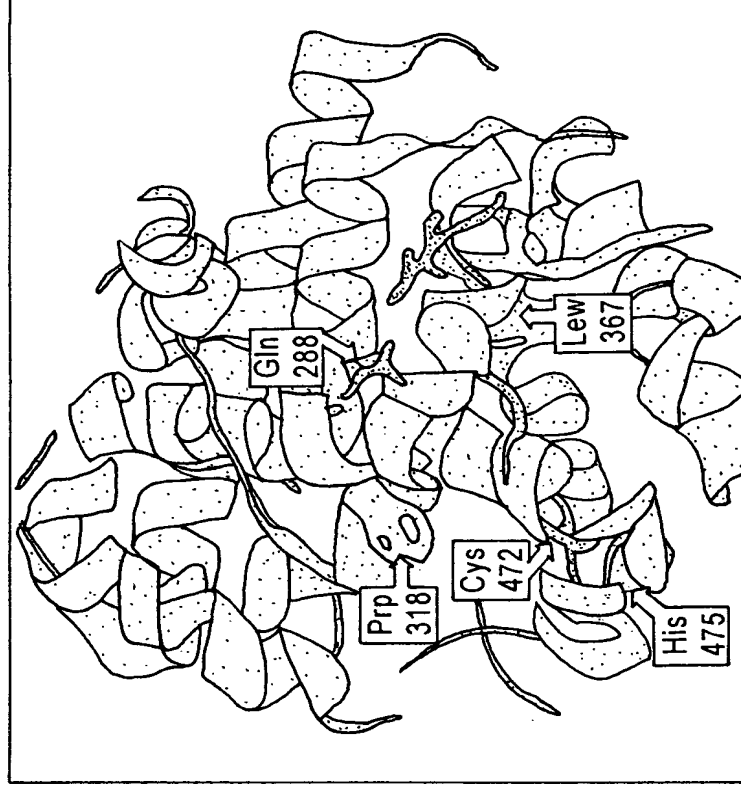


Figure 3D

Panel D - Overlay

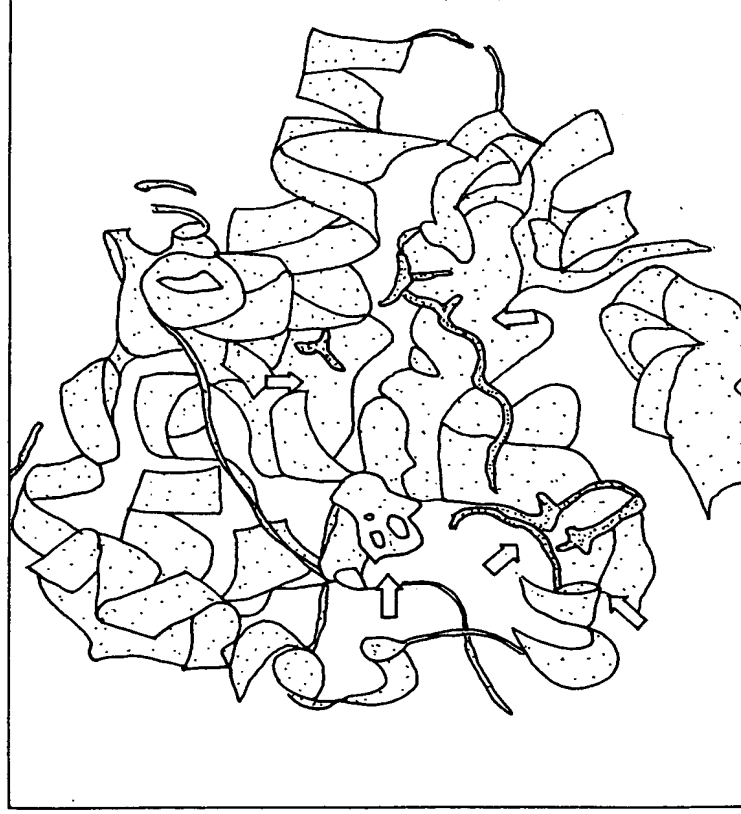


Figure 4A

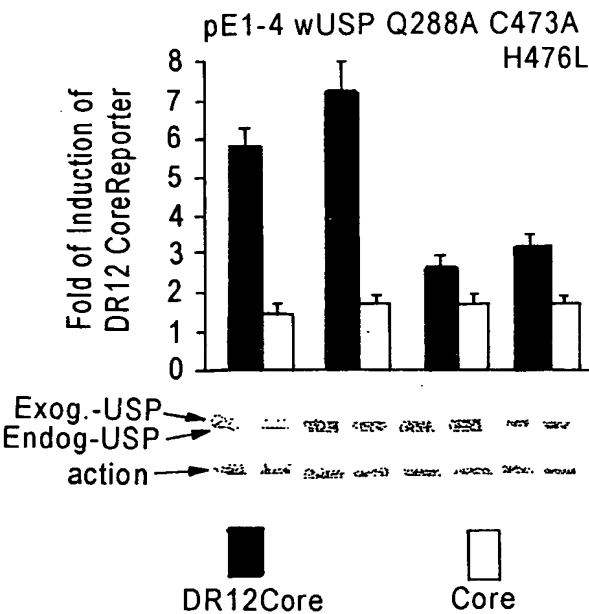


Figure 4B

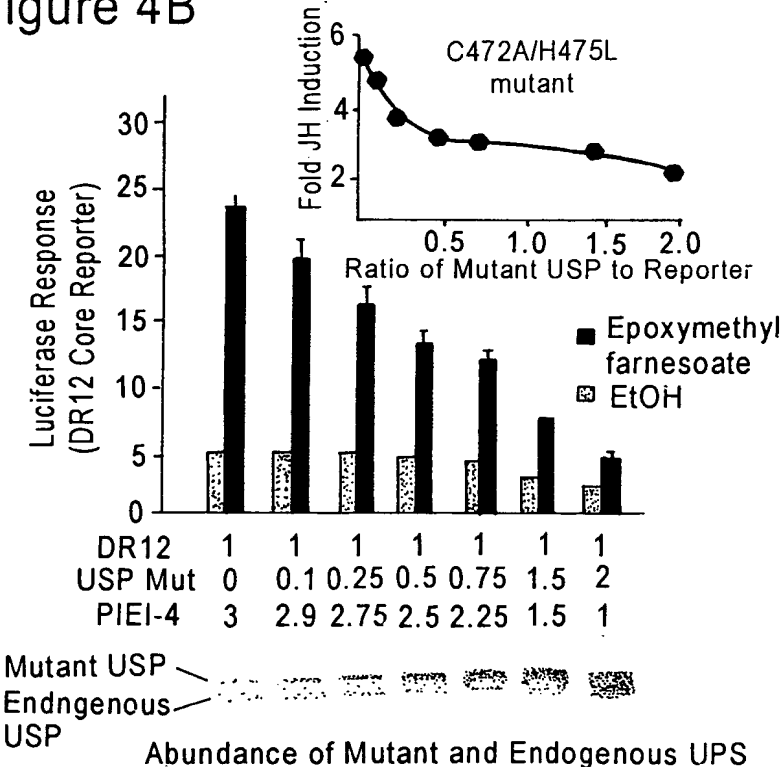


Figure 4C

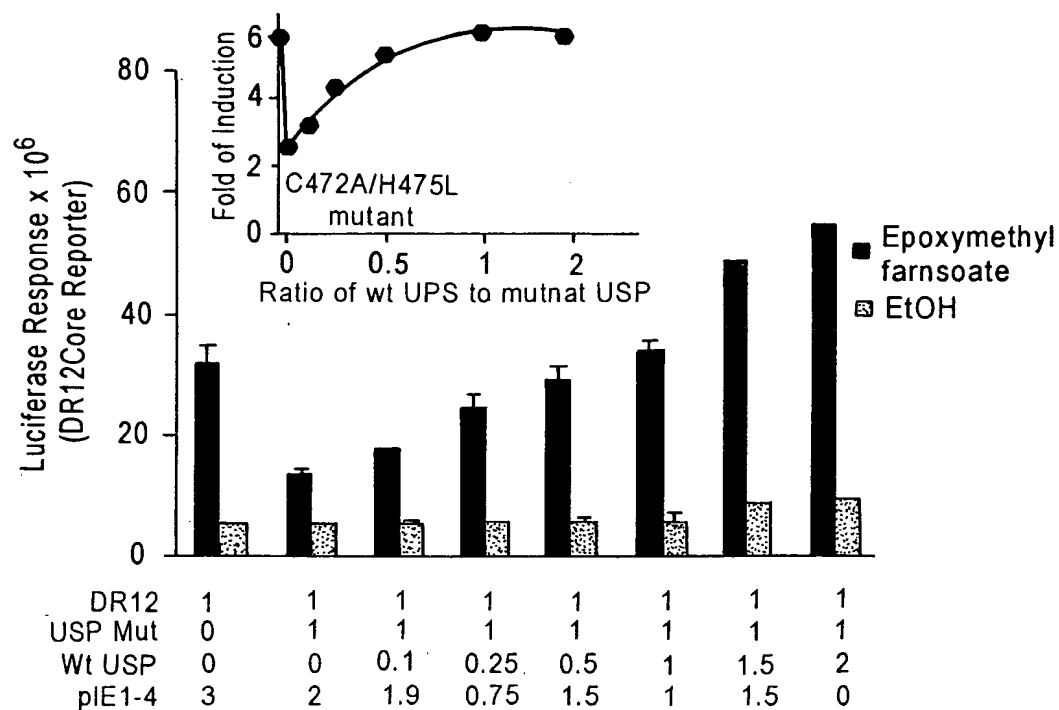


Figure 5A

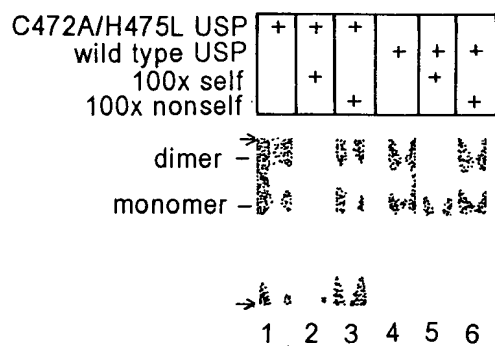


Figure 5B

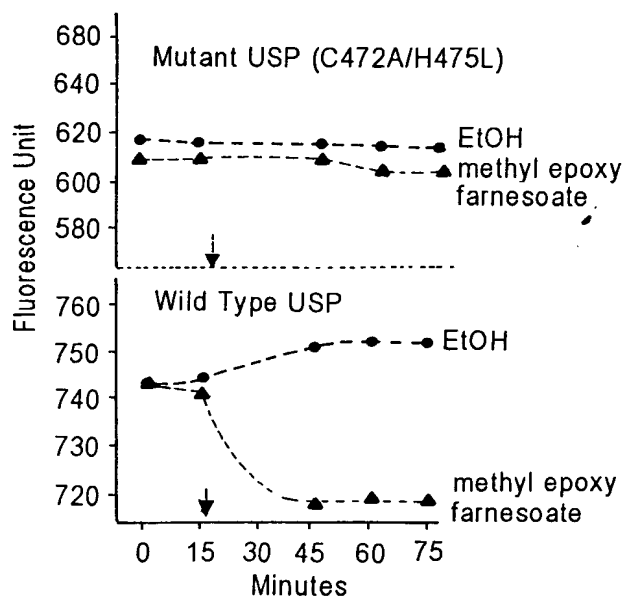


Figure 6A

Replace two proline  
residues at the end of  
on helix 12 with  
two tryptophanes

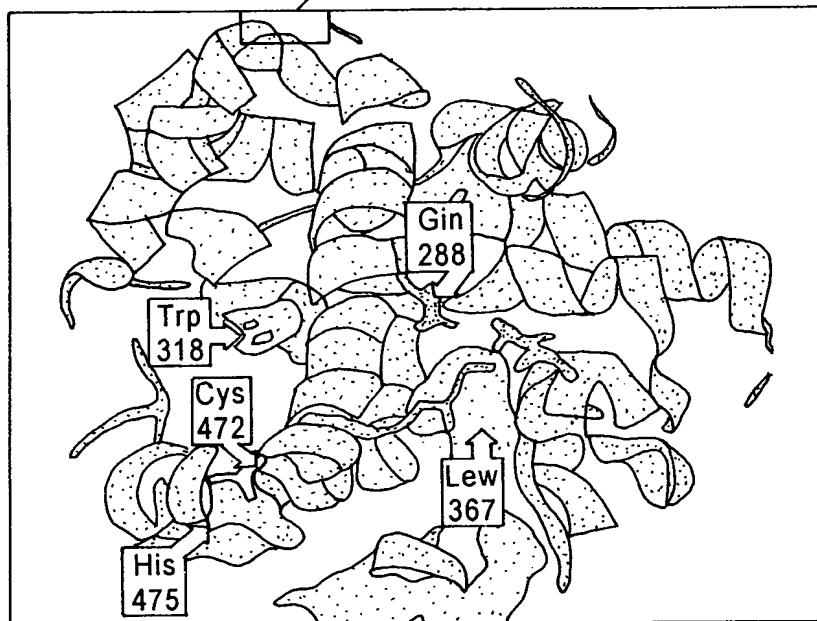


Figure 6B

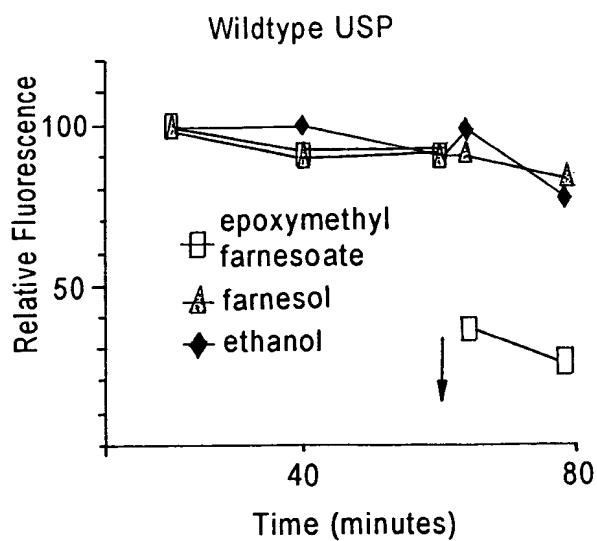
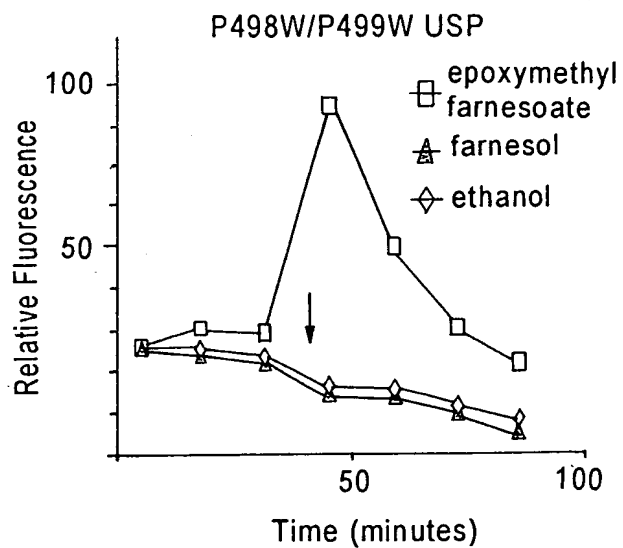


Figure 6C



## Figure 7A

SEQ ID NO: 1: Wild type Drosophila USP cDNA

```
1  aaaaatgtcg acgcgaaaaa aggtatttat tcattagtca
gaaagtctgg cattctttgt
61  ttgttggtaa aaagcgcaat tgtttgagg cgagcgaata
aagtgcgctg ctccatcggc
121 tcaagattat gtaaattgcag caacgacccc accaacaacg
aaactgcaac ctgctccact
181 tggcccaacg gaccaatagc ggacggacgg acacggtggc
gttggcaaag tgaaacccca
241 acagagaggc gaaagcgagc caagacacac cacatacaca
cgaagagaac gagcaagaag
301 aaaccggtag gcggaggagg cgctgcccc agttcctcca
atatacccag caccacatca
361 caagcccagg atggacaact gcgaccagga cgccagcttt
cggctgagcc acatcaagga
421 ggaggtcaag ccggacatct cgcagctgaa cgacagcaac
aacagcagct tttcgcccaa
481 ggccgagagt cccgtgccct tcatgcaggc catgtccatg
gtccacgtgc tgcccggctc
541 caactccgcc agtccaaca acaacagcgc tggagatgcc
caaatggcgc aggcgcccaa
601 ttcggctgga ggctctgccg ccgctgcagt ccagcagcag
tatccgccta accatccgct
661 gagcggcagc aagcacctct gctctatttg cggggatcgg
gccagtggca agcactacgg
721 cgtgtacagc tgtgagggct gcaagggctt ctttaaacgc
acagtgcgca aggatctcac
781 atacgcttgc agggagaacc gcaactgcat catagacaag
cggcagagga accgctgcca
```



## Figure 7B

841 gtactgccgc taccagaagt gcctaacctg cggcatgaag  
cgccaagcgg tccaggagga

901 gcgtcaacgc ggcgcccgcga atgcggcggg taggctcagc  
gccagcggag gcggcagtag

961 cgggccaggt tcggtaggcg gatccagctc tcaaggcgga  
ggaggaggag gcggcgtttc

1021 tggcggaatg ggcagcggca acggttctga tgacttcatg  
accaatagcg tgtccaggga

1081 tttctcgatc gagcgcacatca tagaggccga gcagcgagcg  
gagacccaat gcggcgatcg

1141 tgactgacg ttcttgccg ttggtccta ttccacagtc  
cagccggact acaagggtgc

1201 cgtgtcggcc ctgtgccaaag tggtaacaa acagctcttc  
cagatggctcg aatacgcgcg

1261 catgatgccg cactttgccc aggtgccgct ggacgaccag  
gtgattctgc tgaaagccgc

1321 ttggatcgag ctgctcattg cgaacgtggc ctggtgcagc  
atcgtttcgc tggatgacgg

1381 cggtgccggc ggcgggggcg gtggactagg ccacgatggc  
tcctttgagc gacgatcacc

1441 gggccttcag cccagcagc tgttcctcaa ccagagcttc  
tcgtaccatc gcaacagtgc

1501 gatcaaagcc ggtgtgtcag ccatcttcga ccgcatattg  
tcggagctga gtgtaaagat

1561 gaagcggctg aatctcgacc gacgcgagct gtcttgcttg  
aaggccatca tactgtacaa

1621 cccggacata cgcgggatca agagccgggc ggagatcgag  
atgtgccgcg agaaggtgta

1681 cgcttgccctg gacgagcact gccgcctgga acatccgggc  
gacgatggac gctttgcgca

1741 actgctgctg cgtctgcccg ctttgcgatc gatcagcctg  
aagtgccagg atcacctgtt

## Figure 7C

1801 cctcttccgc attaccagcg accggccgct ggaggagctc  
tttctcgagc agctggaggc

1861 gccgccgcca cccggcctgg cgatgaaact ggagtagggt  
cccgactcta aagtctcccc

1921 cgttctccat ccgaaaaatg ttctattgtg attgcgtttg  
tttgcatttc tcctctctat

1981 cccttatacc ctacaaaagc cccctaatat tacgcaaaat  
gtgtatgtaa ttgtttattt

2041 tttttttatt acctaataatt attattatta ttgatataga  
aaatgttttc cttaagatga

2101 agattagcct cctcgacgtt tatgtcccag taaacgaaaa  
acaaacaaaa tccaaaactt

2161 gaaaagaaca caaaacacga acgagaaaat gcacacaagc  
aaagtaaaag taaaagttaa

2221 actaaagcta aacgagtaaa gatattaaaa taacgggttaa  
aattaatgca tagttatgat

2281 ctacagacgt atgtaaacat acaaattcag cataaatata  
tatgtcagca ggcgcatatc

2341 tgcggtgctg gccccgttct aaatcaattg taattacttt  
ttaacataaa ttaccctaaa

2401 acgttatcaa ttagatgcga gatacaaaaa tcaccgacga  
aaaccaacaa aatatatcta

2461 tgtataaaaa atataaactg cataacaa

## Figure 8

SEQ ID NO: 2 Wild Type Drosophila USP Amino Acid Sequence

MDNCDQDASF RLSHIKEEVK PDISQLNDSN NSSFSPKAES PVPFMQAMSM 50  
VHVLPGSNSA SSNNNSAGDA QMAQAPNSAG GSAAAVQQQ YPPNHPLSGS 100  
KHLCSICGDR ASGKHVGVYS CEGCKGFFKR TVRKDLTYAC RENRNCIIDK 150  
RQRNRCQYCR YQKCLTCGMK REAVQEERQR GARNAAGRLS ASGGGSSGPG 200  
SVGGSSSQGG GGGGGVSGGM GSGNGSDDFM TNSVSRDFSI ERIIEAEQRA 250  
ETQCGDRALT FLRVGPYSTV QPDYKGAVSA LCQVVNKQLF QMVEYARMMP 300  
HFAQVPLDDQ VILLKAAWIE LLIANVAWCS IVSLDDGGAG GGGGGLGHDG 350  
SFERRSPGLQ PQQLFLNQSF SYHRNSAIKA GVSAIFDRIL SELSVKMKRL 400  
NLDRELSCL KAIILYNPDI RGIKSRAEIE MCREKVYACL DEHCRLEHPG 450  
DDGRFAQLLL RLPALRSISL KCQDHLFLFR ITSDRPLEEL FLEQLEAPPP 500  
PGLAMKLE 508

## Figure 9A

### Sequences of several core promoters and Misc. Sequences

AJHSP1 (SEQ ID NO: 3)

GACCAATTAA TAGGTGACCT GCGATAAAAA TTACCTATAA ATATGTGATG TTGCTGGATT G

BJHSP1 (SEQ ID NO: 4)

CGAGAGGTTA TCGCCCAATA CAACAACAAT GATAATGACG TGCAAGCAGA TAATAGTGAA  
AAAATAACAG ATACTAGAGT ATAAAAAGGG GATGCTGGGA GTGGACAGGC ACAGTCGTGG  
TGTGGCAGCA AACA

BJHSP2 (SEQ ID NO: 5)

TCAGTATAAA AAGGGGTGCA TTCTCGGTAA GAGTACAGTT GAACTCACAT CGAGTTAACT  
CCACGATGA

ARYL (SEQ ID NO: 6)

TAAGGGTAGT ATAAAAAGGC GATCAATCAT TGACAAACAG TTTGCAGCAG GCTGTGGGAA CGA

EcRE (SEQ ID NO: 7)

GAGGTCAATGACCTC

DR Forward: (SEQ ID NO: 8)

5'-AGGTCAN<sub>x</sub>AGGTCA-3'

DR reverse: (SEQ ID NO: 9)

5'-TGACCTN<sub>x</sub>TGACCT-3'

SEQ ID NO: 10

AGGTCANAGGTCA

SEQ ID NO: 11

AGGTCANAGGTCAAGGTCANAGGTCA

SEQ ID NO: 12

AGGTCANAGGTCATGACCTNTGACCT

SEQ ID NO: 13

5'-CAAGGTCAAAGGTCAG-3'

## Figure 9B

SEQ ID NO: 14

5'-CAAGGTCAAGAAAGGTCAG-3'

SEQ ID NO: 15

5'-CAAGGTCAAGAAGGCCAAAGAGGTCAG-3'

SEQ ID NO: 16

CAAGGTCANNNNNNNNNNNNAGGTCAG

SEQ ID NO: 17

GGTACCGAGCTCTTACGCGTGCTAGCCCGGGCTCGA

SEQ ID NO: 18

CGGTATTTACACCGCAcATGGTGCACTCTCAGTACAATC

SEQ ID NO: 19

GTGCCAAGTGGTCAACAAAgcGCTCTTCCAGATGGTCGAATAC

SEQ ID NO: 20

GCGATCGATCAGCCTGAAGgcCCAGGATCtCCTGTTCTCTTCCGCATTAC

SEQ ID NO: 21

CTTTCTCGAGCAGCTGGAGGCGtgGtgGCCACCCGGCCTGGCGATGAAACT

JHE Core SEQ ID NO: 22

CGTGTCCGGTGCCGCTGCTGGGGTCGCGCGCCACATATATGCGTGCGAGGAGCGCGCGCCGGCAGTGCGGCG  
TGCGACCCCGACCAGACA